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# STUDIES ON THE HYPOCREACEÆ OF JAPAN

## I. *Podostroma*

BY

**SANSHI IMAI**

(With two text-figures)

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The genus *Podostroma* is distinguished from other clavate hypocreaceous fungi by the spherical spores which are formed in an ascus to the number of sixteen. Formerly, this genus was included in the genus *Hypocrea* or *Podocrea* by TULASNE, SACCARDO, LINDAU and others. In 1905, in his paper on the life history of *Hypocrea alutacea*, ATKINSON, employed the above-mentioned genus name "*Podostroma*" established by KARSTEN in 1892, and placed LINDAU's *Podocrea* as its synonym.

In our country, two species of the genus were recorded under the names *Podocrea Cornu-Damae* and *Podocrea xylarioides* by LLOYD who studied on the specimens which were sent from YASUDA to him. The former species was referred by him with some doubt and the latter was newly named on the immature specimens.

During botanical excursions, the writer has himself collected fungi belonging to this genus and he has also examined YASUDA's specimens deposited in the Herbarium of the Botanical Institute of Tōhoku Imperial University at Sendai. The present short paper is intended to report the result of study on these specimens.

The writer wishes to express his sincere gratitude to Prof. Emeritus KINGO MIYABE and Prof. SEIYA ITO for their valuable suggestions and kind advices, and also to Prof. MASATO TAHARA, of Tōhoku Imperial University, for his kindness in allowing the writer to examine YASUDA's specimens.

### 1. *Podostroma alutaceum* (FR.) ATKINS.

*Sphaeria alutacea* PERS. Obs. Myc. II, 66, 1797.

*Sph. clavata* SOW. Engl. Fungi, pl. 159, 1799.

*Sph. alutacea* β *allicans* PERS. Syn. Fung. 2, 1801.

*Sph. alutacea* FR. Syst. Myc. II, 325, 1823.

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[Transact. Sapporo Nat. Hist. Soc., Vol. XII, Pt. 2, 1932]

*Sphaeria alutacea*  $\beta$  *turgida* FR. *ibid.* 325, 1823.

*Cordyceps alutacea* LINK. *Handb.* IV, 347, 1833.

*Hypocrea alutacea* TUL. *Select. Fung. Carp.* I, 62, 1861.

? *Podostroma leucopus* KARST. *Hedw.* XXXI, 294, 1892.

*Podocrea alutacea* LINDAU, in *ENGL. PR. Nat. Pfl.-fam.* I, 1, 364, 1897.

*Podostroma alutaceum* ATKINS. *Bot. Gaz.* XL, 416, 1905.

Hab. On the ground among the leaves of various trees, especially among the needles or decaying wood or organic matters on the ground. Hokkaido: Prov. Ishikari, Mt. Soranuma (Sept. 20, 1930, IMAI). Prov. Shiribeshi, Zenibako-tôge (Oct. 14, 1928, TOKUNAGA). S. Saghalien: Mt. Kashipo (Sept. 9, 1929, TOKUNAGA).

Jap. name.

The present fungus is variable in the form and color, as well as in its substratum, as ATKINSON noticed already. The specimen from Shiribeshi had grown in association with *Spathularia flavida* among the needles of *Larix* and it is a tan-colored which corresponds to BERKELEY's figure. The Saghalien specimen had grown together with *Clavaria sachalinensis* IMAI under a *Picea*-

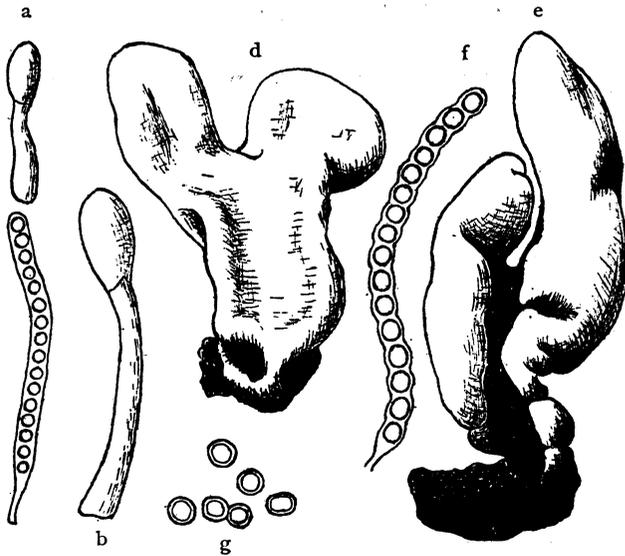


Fig. 1

- a. *Podostroma alutaceum*, Shiribeshi-specimen,  $\times 1$
- b. Ditto, Saghalien-specimen,  $\times 1$
- c. Ditto, ascus,  $\times$  ca. 700
- d, e. *Pod. giganteum*,  $\times$  ca. 1/2
- f. Ditto, ascus,  $\times$  ca. 600
- g. Ditto, spores,  $\times$  ca. 700

tree. It is whitish to cream in color somewhat resembling SOWERBY's figure. The Ishikarian specimen was found among the fallen leaves in the mixed woods, without any association of other fungus and its general feature were like the one from Saghalien. Although TULASNE and BROOME considered that the present fungus is parasitic on *Clavaria ligula* and *Spathularia flavida* respectively, it seems better to consider, at least in our cases, that there is only a fortuitous association with them.

In YASUDA's Herbarium, there are two specimens labeled as *Podocrea alutacea*. After a careful examination, the writer recognised that one of them is a new species and named it *Podostroma truncatum*. Another remained as an undetermined species because it is an immature specimen.

### 2. *Podostroma giganteum* IMAI, sp. nov.

Stromatibus maximis, bi-lobatis, 10-16 cm. altis; lobis alutaceis, compressis vel subcylindraceis, 1-3 cm. latis; stipitibus atratis, usque 5 cm. altis, 2 cm. crassis; peritheciis immersis, subglobosis vel late ellipsoideis; ascis cylindraceis, 75-125 × 5-6 μ, primo 8- demum 16-sporis; sporidiis globosis vel subglobosis, 5 vel 6 × 5 μ, hyalinis.

Hab. in lignis putridis. Hokkaido: Prov. Ishikari, Nopporo (Sept. 7, 28, 1930, IMAI); Tsukigatamura (Sept. 1929).

Jap. name.

Among the hitherto recorded species of this genus the writer can not find out such a gigantic one which is provided with the compressed or subcylindrical two lobed stroma as the present fungus.

### 3. *Podostroma zeylanicum* (PETCH) IMAI, comb. nov.

*Podocrea zeylanica* PETCH, Ann. Roy. Bot. Gard. Perad. VI, 230, 1917.

*Pod. Cornu-Damae* LLOYD (nec LINDAU non SACC.) Myc. Notes, No. 56, p. 810, f. 1261, 1918.

*Pod. Cornu-Damae* YASUDA (non LINDAU) in Sched.

Hab. ? On rotten wood. Honshu: Prov. Iyo, Odo-mura (Oct. 1917, KOMATSUZAKI).

Jap. name.

Three specimens of the present fungus present in the YASUDA Herbarium. Two of them united with each other at the base of stem; one has a two-lobed apex and is 2 cm. high, 0.8 cm. broad and 0.3 cm. thick in its whole size, while the other has a flattened long conical head and short cylindrical stem and is 3.5 × 0.5 × 0.4 cm. in size. The third fungus has a scarcely flattened long conical head and the size is 3.5 × 0.6 × 0.6 cm. The spores are yellowish

hyaline, globose or subglobose and about  $4\mu$  in diameter. A part of the specimen was sent from YASUDA to LLOYD who identified it as a young one of *Podocrea Cornu-Damae*, but, as has been described and illustrated by PATOUIL-LARD, *Podocrea Cornu-Damae* is larger than the present fungus, measuring 5 to 10 cm. in height and has a corniculate apex in the older stage, though it is simple cylindrical in the younger stage. Considering the fungus in question to be identical with *Podocrea zeylanica* PETCH, the writer treats it here under the name *Podostroma zeylanicum*, changing the genus name of PETCH's fungus.

**4. *Podostroma truncatum* IMAI, sp. nov.**

*Podocrea alutacea* YASUDA (non SACC.) in Sched.

Stromatibus subcompresso-cylindraccis, apice truncatis et depressis, 1.5-3 cm. altis, ca. 5 mm. crassis, in sicco umbrineis vel fuligineis; stipitibus usque 1.5 cm. altis et 5 mm. crassis, concoloribus; peritheciis immersis, subglobois; ascis cylindraccis,  $75-110 \times 5\mu$ , primo 8-demum 16-sporis; sporidiis subglobois, hyalinis,  $4-5\mu$ .

Hab. ad ligna. Honshu: Prov. Kôdzuke, Mt. Akagi (Sept. 21, 1919, TSUNODA).

Jap. name.

The present fungus was determined by the writer, basing on the YASUDA specimens which he named *Podocrea alutacea* (PERS.) SACC. The fungus is distinguishable from others of the genus by the truncate and depressed apex of stroma.

As already mentioned in the preceding page, there is another specimen which has been labeled as *Podocrea alutacea* by YASUDA, but the fungus is immature and indeterminable at the present.

**5. ? *Podostroma Solmsii* (E. FISCH.) IMAI, comb. nov.**

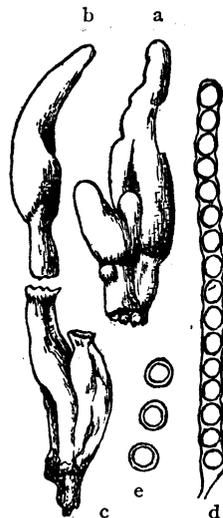
? *Hypocrea Solmsii* E. FISCH. Ann. Jard. Bot. Buitenz. VI, 129, 1887.

? *Podocrea Solmsii* LINDAU, in ENGL. PR. Nat. Pfl. -fam. I, 1, 365, 1897.

Hab. Parasitic on Dictyophora-egg. Hokkaido: Prov. Ishikari, Nopporo (Oct. 25, 1930, IMAI).

Jap. name.

Unfortunately, our specimen is immature, so we can not determine its real



**Fig. 2**

- a, b. *Podostroma zeylanicum*,  $\times 1$
- c. *Pod. truncatum*,  $\times 1$
- d. Ditto, ascus,  $\times$  ca. 600
- e. Ditto, spores,  $\times$  ca. 800

systematic position, but provisionally the present name was used, from the habitat parasitic on Dictyophora-egg.

Finally, an analytical key to the species of Japanese Podostroma is given as follows:

- I. Stroma 2-5 cm. long, clavate, cylindrical clavate or corniculate
  1. Clavate, not truncate at the apex ..... 1. *alutaceum*
  2. Clavate or cylindrical with the truncate and depressed apex .....  
..... 4. *truncatum*
  3. Corniculate, irregularly lobed or cylindrical clavate, not truncate at the apex
    - a. Growing on Wood ..... 3. *zeylanicum*
    - b. Parasitic on Dictyophora-egg ..... 5. ? *Solmsii*
- II. Stroma 10-16 cm. long, usually two-lobed and flattened or subcylindrical  
..... 2. *giganteum*

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## 摘 要

### 日本産肉座菌料の研究

#### I. ポドストローム属

今 井 三 子

本属 *Podostroma* は核菌族中、肉質鮮色なる子實體を有する肉座菌科に於て、直上せる有柄の子實體を有し其子囊内には初め八個の胞子を生じ、後隔膜を生じて夫より分割されたる十六個の胞子を蔵するものなり。本属の日本産種類として従来二種發表されたりと雖も正當なるものに非ず。本研究に於て五種を報ぜり、内二種は新種にして、一種は尙疑問の存するものなり。之等を檢索表に依りて示せば次の如し。

- I. 子實體は長さ 2-5 cm. にして棍棒狀、圓筒棍棒狀或は角狀を呈す。
  1. 子實體は棍棒狀にして圓頭を呈す ... .. 1. *alutaceum*
  2. 子實體は棍棒狀或は圓筒棍棒狀にして、截頭を呈し且つ其頂部陷没す ..... 4. *truncatum*
  3. 子實體は角狀或は不規則分岐狀或は圓筒棍棒狀をなし、截頭を呈せず
    - a. 腐朽材の上に生ず ... .. 3. *zeylanicum*
    - b. 絹笠茸に寄生す ... .. 5. ? *Solmsii*
- II. 子實體は長さ 10-16 cm. にして、扁平或は類圓筒形二片に分岐す ... .. 2. *giganteum*